


Preparing for the MCAT

William J. Higgins



---

---

---

---

---

---

---

Disclaimer

No absolutes in this process, **but**  
the data don't lie!

---

---

---

---

---

---

---

What % of applicants  
matriculate?

43.5%

18,390 matriculants out of 42,269 applicants in 2009

---

---

---

---

---

---

---

Table 17: Applicants and Matriculants to  
U.S. Medical Schools, 1996-2008

2002	2003	2004	2005	2006	2007	2008
33,625	34,791	35,735	37,737	39,108	42,315	42,231
16,488	16,541	16,648	17,003	17,361	17,759	18,036

<http://www.aamc.org/data/facts/2008/2008mcatgpa.htm>

## Selection Criteria

- GPA - overall and science
  - Strength of transcript
  - ALL grades reported
    - Repeated courses?
- MCAT scores
- Application essays
  - What do I tell the schools?
  - Are they really important?
- Experience
- Letters



Office of Intramural  
**TRAINING & EDUCATION**  
NATIONAL INSTITUTES OF HEALTH

**Applicants and Matriculants Data**

**By Institution**

1. U.S. Medical School Applications and Matriculants by School, State of Legal Residence, and Sex, 2009
2. Undergraduate Institutions Submitting Applicants to U.S. Medical Schools, by Applicant Race and Ethnicity, 2009

**By Legal Residence, Age, Sex**

3. Applicants to U.S. Medical Schools by State of Legal Residence, 1998-2009
4. Matriculants to U.S. Medical Schools by State of Legal Residence, 1998-2009
5. Applicants to U.S. Medical Schools by Year of Medical School Matriculation Status, 2009
6. Age of Applicants to U.S. Medical Schools at Anticipated Matriculation by Sex and Race and Ethnicity, 2002-2009
7. Applicants, First-Time Applicants, Acceptances, and Matriculants to U.S. Medical Schools by Sex, 1998-2009

**By Race and Ethnicity**

8. Applicants to U.S. Medical Schools by Race, Selected Combinations within Hispanic or Latino Ethnicity, and Sex, 2009
9. Matriculants to U.S. Medical Schools by Race, Selected Combinations within Hispanic or Latino Ethnicity, and Sex, 2009
10. Applicants to U.S. Medical Schools by Hispanic or Latino Ethnicity, Non-Hispanic or Latino Race, and State of Legal Residence, 2009
11. Matriculants to U.S. Medical Schools by Hispanic or Latino Ethnicity, Non-Hispanic or Latino Race, and State of Legal Residence, 2009
12. Applicants, First-Time Applicants, Acceptances, and Matriculants to U.S. Medical Schools by Hispanic or Latino Ethnicity, Non-Hispanic or Latino Race, and Sex, 2009-2009
13. Race and Ethnicity Responses of Applicants to U.S. Medical Schools, 2002-2009
14. Race and Ethnicity Responses (Open and In Combination) of Applicants to U.S. Medical Schools, 2002-2009
15. Race and Ethnicity (One Race Response) of Applicants to U.S. Medical Schools, 2002-2009
16. Applicants to U.S. Medical Schools by Race and Ethnicity, Selected Combinations, 2002-2009

**Related**

U.S. Medical School Applicants and Students (PGY) These charts include longitudinal data back to 1985.

For MCAT examinee data, see "MCAT Exam Statistics" on the Administration Officers and the Health Access.

**Contact FACTS**

For additional data on medical school applicants, matriculants, enrollment, and graduates, please e-mail [facts@aamc.org](mailto:facts@aamc.org)

## Numerical Selection Criteria

Matriculants, 1998-2009		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
MCAT VR	Mean	9.5	9.5	9.5	9.5	9.5	9.5	9.7	9.7	9.8	9.8	9.8	9.8
	SD	1.7	1.7	1.8	1.8	1.8	1.7	1.7	1.8	1.7	1.8	1.8	1.7
MCAT PS	Mean	9.9	10.0	10.0	10.0	10.0	9.9	9.9	10.0	10.1	10.3	10.3	10.3
	SD	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0
MCAT BS	Mean	10.2	10.2	10.2	10.1	10.2	10.2	10.3	10.4	10.5	10.6	10.7	10.8
	SD	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7
Total MCAT	Mean	29.6	29.7	29.7	29.6	29.6	29.6	29.9	30.2	30.3	30.8	30.9	30.8
	SD	4.5	4.4	4.4	4.3	4.3	4.2	4.1	4.3	4.2	4.2	4.2	4.1
MCAT WS	Median	P	P	P	P	P	P	P	P	P	P	P	P
	Mean	3.52	3.53	3.54	3.54	3.54	3.55	3.56	3.56	3.57	3.59	3.60	3.60
GPA science	Mean	0.37	0.38	0.35	0.35	0.36	0.35	0.35	0.35	0.36	0.38	0.38	0.38
	SD	0.07	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
GPA non-science	Mean	3.64	3.66	3.67	3.68	3.69	3.70	3.70	3.70	3.71	3.73	3.73	3.74
	SD	0.30	0.30	0.29	0.28	0.27	0.26	0.26	0.26	0.26	0.25	0.25	0.25
GPA total	Mean	3.57	3.59	3.60	3.60	3.61	3.62	3.62	3.63	3.64	3.65	3.66	3.66
	SD	0.31	0.30	0.30	0.29	0.28	0.28	0.28	0.28	0.27	0.26	0.26	0.26
Total Matriculants		16,170	16,221	16,301	16,365	16,488	16,541	16,648	17,003	17,361	17,759	18,036	18,390

## Statistics, 2009

	Applicants	Matriculants
#	42,269	18,390
VR	9.0	9.8
PHYS	9.2	10.3
BIOL	9.8	10.8
Writing	O	P

43.5%

Subject Averages 28.1 ↔ 30.9


<http://www.aamc.org/data/facts/applicantmatriculant/table18-facts09mcatgpbymaj1-web.pdf>

## Applicant Facts

### Average MCAT Scores

MCAT	2006		2007		2008	
	Applicants	Matriculants	Applicants	Matriculants	Applicants	Matriculants
Physical	9.1	10.1	9.2	10.3	9.3	10.3
Verbal	9.0	9.8	9	9.5	9.0	9.9
Writing	O	P	O	P	P	P
Biological	9.5	10.5	9.5	10.6	9.8	10.7





# The MCAT

## What is it?

---

---

---


---


---

---

---

---





MCAT is a program of the Association of American Medical Colleges

[MCAT](#)
[AMCAS](#)
[ERAS](#)
[NMP](#)
[Publications](#)
[More Resources](#)

[Shopping Cart](#)
[Site Map](#)
[Search](#)

### Medical College Admission Test (MCAT)

Are you beginning to prepare for the MCAT exam, getting ready to register, or heading off to the test center? We have all the official information you need about the MCAT exam.

**MCAT Issues**

**About the MCAT Exam**

**Preparing for the Exam**

**Reserving a Seat**

**Taking the MCAT Exam**

**Releasing Scores**

**Contacting MCAT**

**The Official Guide to the MCAT® Exam**

Questions taken from real MCAT exams. Thoroughly explained answers, and valuable significant data.

**Preparing for the Exam**

Order practice tests, review content descriptions for each section of the exam, see a sample study plan.

- Ordering Practice Tests
- Creating a Study Plan
- More Preparing for the Exam

**Testing with Accommodations**

Examinees with disabilities or medical conditions who feel adjustments are necessary to the testing environment are encouraged to [apply for accommodated testing](#). Here you will find information about the application process, registering for a test date, confirming an accommodation, and much more.

**Reserving a Seat**

Locate an available test center, reserve a seat, apply for accommodations, and check the registration deadlines.

- 2019 MCAT Essentials (PDF)
- 2019 Registration Deadline and Score Release Schedule
- Registration Tips
- More Reserving a Seat

**Updates**

Registration for all 2019 MCAT Exam dates is now available.

Find out more about the 2019 MCAT Essentials (PDF) before registration.

**Testing with Accommodations?** Be sure to review the 2019 testing year [application deadline](#).

**Quick Links**

Registration Login

The Official Guide to the MCAT Exam

MCAT Practice Online

Score Report Login

Examinees with Disabilities or Medical Conditions

---

---

---


---

---

---

---

---



# Your MCAT Day

TEST SECTIONS	TIME
Non-Disclosure Agreement	10 minutes
Tutorial (Optional)	
Physical Sciences	70 minutes
52 Questions	
Break (Optional)	10 minutes
Verbal Reasoning	60 minutes
40 Questions	
Break (Optional)	10 minutes
Writing Sample	60 minutes
2 Essays	
Break (Optional)	10 minutes
Biological Sciences	70 minutes
52 Questions	
Survey (Optional)	10 minutes
Total Content Time	4 hours, 20 minutes
Total "Seat" Time*	5 hours, 10 minutes

---

---

---


---

---

---

---

---



# The MCAT

## When?

---

---


---

---

---

---

---



### 2011 MCAT Exam Schedule for the United States and Canada

Single Administration 8 a.m.  
Single Administration 1 p.m.  
Double Administration 8 a.m. and 2 p.m.

January	February	March	April
S M T W T F S	S M T W T F S	S M T W T F S	S M T W T F S
1	1 2 3 4 5	1 2 3 4 5	1 2
2 3 4 5 6 7 8	6 7 8 9 10 11 12	6 7 8 9 10 11 12	3 4 5 6 7 8 9
9 10 11 12 13 14 15	13 14 15 16 17 18 19	13 14 15 16 17 18 19	10 11 12 13 14 15 16
16 17 18 19 20 21 22	20 21 22 23 24 25 26	20 21 22 23 24 25 26	17 18 19 20 21 22 23
23 24 25 26 27 28 29	27 28	27 28 29 30 31	24 25 26 27 28 29 30
30 31			

May	June	July	August
S M T W T F S	S M T W T F S	S M T W T F S	S M T W T F S
1 2 3 4 5 6 7	1 2 3 4	1 2	1 2 3 4 5
8 9 10 11 12 13 14	5 6 7 8 9 10 11	3 4 5 6 7 8 9	6 7 8 9 10 11 12
15 16 17 18 19 20 21	12 13 14 15 16 17 18	10 11 12 13 14 15 16	13 14 15 16 17 18 19
22 23 24 25 26 27 28	19 20 21 22 23 24 25	17 18 19 20 21 22 23	20 21 22 23 24 25 26
29 30 31	26 27 28 29 30	24 25 26 27 28 29 30	27 28 29 30 31

---

---


---

---

---

---

---



# Schools accepting September MCATs ?

---

---


---

---

---

---

---



# The MCAT

How well must I do?

How to do well?

---

---

---


---

---

---

---

---



# The MCAT

- Biological Sciences (1 - 15)
- Physical Sciences (1 - 15)
- Verbal Reasoning (1 - 15)
- Writing Sample (J - T)

*Note: these scores are scaled, not absolute.*

---

---

---


---

---



---

---

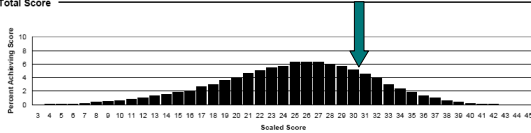
---



# MCAT Data: 2009 Combined

**Table 1**  
Percentages of MCAT Examinees Achieving Scaled Score Levels and Associated Percentile Rank Ranges by Area of Assessment  
Combined 2008 Administrations N = 75,809



source: [www.aamc.org/students/mcat](http://www.aamc.org/students/mcat)

---

---

---

---

---

---

---

---

Scaled Score	Percent Achieving Score	Percentile Rank Range
45	0.0	99.9-99.9
44	0.0	99.9-99.9
43	0.0	99.9-99.9
42	0.1	99.9-99.9
41	0.1	99.7-99.8
40	0.2	99.5-99.6
39	0.4	99.2-99.4
38	0.7	98.5-99.1
37	1.0	97.6-98.4
36	1.3	96.2-97.5
35	1.9	94.4-96.1
34	2.4	92.0-94.3
33	2.9	89.0-91.9
32	3.9	85.1-88.9
31	4.6	80.5-85.0
30	5.2	75.3-80.4
29	5.7	69.6-75.2
28	5.9	63.7-69.5
27	6.3	57.3-63.6
26	6.3	51.0-57.2

**Scaled Score**  
Mean = 24.9  
Std Deviation = 6.4

source: [www.aamc.org/students/mcat](http://www.aamc.org/students/mcat)

---

---

---

---

---


---

---

---

---

---



## Example: Physical Sciences

- 52 Total Questions in 70 minutes
- 42 related to passages
  - ~250 words in each of 7 - 9 passages
- 10 questions unrelated to each other or to the passages
- ~42,000 test takers earning scores of 1 - 15

---

---

---

---

---


---

---

---

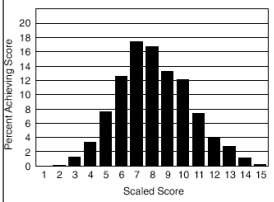
---

---



## Scaled Scores

Physical Sciences



Scaled Score	Percent Achieving Score	Percentile Rank Range
15	0.2	99.6-99.9
14	1.1	98.9-99.5
13	2.8	96.0-98.7
12	4.0	92.0-95.9
11	7.4	84.6-91.9
10	12.1	72.5-84.5
9	13.3	59.2-72.4
8	16.7	42.5-59.1
7	17.4	25.1-42.4
6	12.6	12.4-25.0
5	7.6	04.8-12.3
4	3.3	01.5-04.7
3	1.3	00.2-01.4
2	0.1	00.1-00.1
1	0.0	00.0-00.0

source: [www.aamc.org/students/mcat](http://www.aamc.org/students/mcat)

---

---

---

---

---

---



---

---

---

---





**Question:**  
How many questions (out of 52 total) separate a score of 10 from a 9 or an 11 ?

---

---



---

---

---

---

---



**Things to remember about MCAT Preparation**

1. You are studying to get a score, not learn tons of material.
2. You do not need to know the enzymes of the Krebs Cycle.
3. You only need to know a relatively small number of facts.
4. Content study yields diminishing returns. Practice pays larger dividends.

---

---



---

---

---

---

---



**So how do I begin to study?**

1. Download Content!
2. Set up study schedule
3. Analyze Practice Tests
4. Textbooks !!!
5. Sample problems !!!

---

---

---

---

---

---

---

[MCAT](#)
[AAMC](#)

[MCAT](#)
[AAMC](#)
[ERAS](#)
[NMP](#)
[Publications](#)
[More Resources](#)

[MCAT Home](#)
[About the MCAT Exam](#)
[Registration](#)
[Examines with Disabilities](#)
[Practice Tests](#)
[MCAT Scores](#)
[Examinee Data](#)
[Research](#)
[Contact MCAT](#)

**Preparing for the MCAT Exam**

[Preparing for the MCAT FAQ](#)

[Schedule FAQ](#)

**The Testing Experience**

[Testing Experience FAQ](#)

[Testing Center Regulations and Procedures](#)

[Transition to the Computerized MCAT Exam FAQ](#)

[Mindfulness FAQ](#)

**Test Sections**

[How do I prepare for the Science sections?](#)

[What is in the Biological Sciences section?](#)

[Topics for Biological Sciences Sections of the MCAT Exam \(PDF, 25 pages\)](#)

[What can I expect in the Physical Sciences section?](#)

[Physical Sciences—General Chemistry Topics \(PDF, 10 pages\)](#)

[How should I prepare for the Writing Sample?](#)

[Examples of MCAT Writing Sample Prompts](#)

[How is the Writing Sample scored?](#)

[How do I get ready for the Verbal Reasoning Skills section?](#)

[Verbal Reasoning Skills Topics \(PDF, 1 page\)](#)

**Taking the MCAT exam?**  
Take charge of your prep!

[MCAT Practice Online](#)

[MCAT](#)
[AAMC](#)

[MCAT](#)
[AAMC](#)
[ERAS](#)
[NMP](#)
[Publications](#)
[More Resources](#)

**Topics for Biological Sciences Section of the MCAT**

**Biology**

**Molecular Biology: Enzymes and Metabolism**

**A. ENZYME STRUCTURE AND FUNCTION**

- Function of enzymes in catalyzing biological reactions
- Reduction of activation energy
- Substrates and enzyme specificity

**B. CONTROL OF ENZYME ACTIVITY**

- Feedback inhibition
- Competitive inhibition
- Non-competitive inhibition

**C. BASIC METABOLISM**

- Glycolysis, anaerobic and aerobic, substrates and products
- Krebs cycle, substrates and products, general features of the pathway
- Electron transport chain and oxidative phosphorylation, substrates and products, general features of the pathway
- Metabolism of fats and proteins



[MCAT](#)
[AAMC](#)

[MCAT](#)
[AAMC](#)
[ERAS](#)
[NMP](#)
[Publications](#)
[More Resources](#)

**Oxygen Containing Compounds**

**A. ALCOHOLS**

- Description
  - nomenclature
  - physical properties
  - infrared absorption of OH group
- Important reactions
  - substitution reactions:  $S_N1$  or  $S_N2$ , depending on alcohol and derived alkyl halide
  - oxidation
  - pinacol rearrangement in polyhydroxyalcohols; synthetic uses
  - protection of alcohols
  - reactions with  $SOCl_2$  and  $PBr_3$
  - preparation of mesylates and tosylates
  - esterification
  - inorganic esters
- General principles
  - hydrogen bonding
  - acidity of alcohols compared to other classes of oxygen-containing compounds
  - effect of chain branching on physical properties

**Physics**

**Translational Motion**

1. Units and dimensions
2. Vectors, components
3. Vector addition
4. Speed, velocity (average and instantaneous)
5. Acceleration
6. Freely falling bodies

**Force and Motion, Gravitation**

1. Center of mass
2. Newton's first law, inertia
3. Newton's second law ( $F = ma$ )
4. Newton's third law, forces equal and opposite
5. Concept of a field
6. Law of gravitation ( $F = G \frac{m_1 m_2}{r^2}$ )
7. Uniform circular motion
8. Centripetal acceleration ( $F = mv^2/r$ )
9. Weight
10. Friction, static and kinetic
11. Motion on an inclined plane
12. Analysis of pulley systems
13. Force

---

---

---



---

---

---

---

---

The most beneficial, helpful, and useful thing you can do to prepare.....

Take practice tests under **game** conditions!

---

---

---



---

---

---

---

---

**Practice MCATs at**

- [www.e-mcat.com](http://www.e-mcat.com)
  - Online
- [www.aamc.org](http://www.aamc.org)
  - Online and paper for sale
- Sample questions in PDF manual
- Helpful site:  
<http://silenttimer.com/handbook/standardizedtest/mcat/index.php>

---

---

---



---

---

---

---

---

## Do I need a review course ?

---

---



---

---

---

---

---

## Writing sample

- Developing a central idea
- Synthesizing concepts and ideas
- Presenting ideas cohesively and logically
- Writing clearly using good grammar, syntax and punctuation consistent with a timed, first draft

---

---



---

---

---

---

---

## Writing sample

You are given a statement expressing an opinion.

**First**, explain what you think this means.

**Second**, explore the meaning by considering a circumstance in which the statement might not apply or be true.

**Third**, discuss ways in which the conflict might be resolved.

---

---

---

---

---

---

---

## Writing Sample

- Two scores for each of two sections
  - Each evaluator awards a score of 1 to 6
- Sum of scores on two questions is converted to J to T scale (11 units on scores from 4 - 24)
- For example:
  - 3 & 3 on Part 1 and 5 & 6 on Part 2
  - Raw score of 17 converted to alphabetic to give distribution

---

---

---

---

---

---

---

---

## Writing Sample Scores

Year	Applicants	Matriculants
1999	P	P
2000	P	P
2001	P	P
2002	P	P
2003	P	P
2004 - 2008	O	P

---

---

---

---

---

---

---

---

To get a score of P?

≥ 59.5 percentile

---

---

---

---

---

---

---

---

## So what do you do now?

- Strunk & White, *The Elements of Style*
- Examine and **analyze** sample essays on web site
- Practice writing timed essays with your study group, each analyzing the work of the group after understanding the scoring and letting them lay dormant for a few days.
- Get a logic or rhetoric book and formally examine some structures for arguments.
  - *If you have time to do this, call me! I will help you find a life!*

---

---

---

---

---

---

---

## Can you cover all of the content?

- What % of what you study will be on YOUR version of the exam?
- So you do the best you can with the study time you have left before test day
- Is your situation any different than that of other test takers?
- **Remember:** Our mission is to.....

---

---

---

---

---

---

---

## Your study calendar

- How many hours per week?
  - How many hours on each day of the week?
- When ?
- What ?
- Where ?
- Check for understanding !

---

---



---

---

---

---

---

As the MCAT day approaches, you should be spending less time on content and more time on practice tests!

With three weeks to go, you should be spending 80% time with practice tests, 20% on content study based on what you missed on practice tests!

---

---

---



---

---

---

---

---

Your Weekly Schedule:

- Monday: one 70 minute Biology section
- Tuesday: grade, review & study
- Wednesday: one 70 min Physics section
- Thursday: grade, review & study
- Friday: Happy Hour
- Sat & Sun: VR

---

---

---

---

---

---

---

---

Time / Question

Section	# of Questions	Time Allowed	Time/ Question
Physical Sciences	52	70 min	~1.3 min or 80 sec
Verbal Reasoning	40	60	1.5 min or 90 sec
Writing	2	60	30 min
Biological Sciences	52	70	~1.3 min or 80 sec

---

---

---

---

---

---

---

---

What to do with this information?

Make a table of questions  
completed by certain time points  
for each section!

---

---

---

---

---

---

---

Example: Biology

Question #	Time elapsed
10	13.5 minutes
20	27 minutes
30	40.5 minutes
40	53.5 minutes
50	64 minutes

---

---

---

---

---

---

---

Know your Question # vs. Time  
progress

---

---

---

---

---

---

---



## Attacking the Biological Sciences & Physical Sciences sections

- Questions associated with 7 passages (39 and 4 - 7 per passage) and 13 stand alone questions
- Step One: There are FOUR (4) types of questions !

---

---

---

---

---

---

---

## The Four Types of Questions:

- The answer:
  - is in the passage
  - is in the graph or table
  - must be recalled from your knowledge
  - must be arrived at by deductive or inductive reasoning

---

---

---

---

---

---

---

## So now...

- For passages,
  - Skim / read the questions first
  - Label questions as to type
  - Read the passage and data, looking for answers
  - Go back to questions and ....

---

---

---

---

---

---

---

Do not look at the answers until  
you have answered the question  
if the answer isn't in the passage  
or data!

---

---

---

---

---

---

---

### Other thoughts...

- Process of elimination when required
- Guessing is not penalized
  - Especially if the answer is not in the passage or data
- Keep up the pace
- Keep up the emotional energy
  - Example from 2000

---

---

---

---

---

---

---

### Verbal Reasoning

- Seven passages of ~600 words, each with 5 - 7 questions
- Practice, practice, practice.....
- Keep up the pace or plod along?
  - Your personal strategy must be applied
- Remember when you can find the answer in the passage and when inference is required
- You must stay with it in practice and on the test!

---

---

---

---

---

---

---

### Possible strategies:

- Outline passage?
- Read passage, read & answer Q's going back to passages as necessary
- Skim & then read passage, then do Q's
- Skim, read Q's, read passage, do Q's
- Read Q's, read passage, do Q's
- Read the first two sentences and 'guess' your way through that passage.

---

---

---

---

---

---

---